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A Theoretical Sketch of Discourse Comprehension in Second Language

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I. Introduction

Due to the advancement of telecommunication technology and transportation for the past few decades, global communication that goes beyond national and cultural boundaries is getting more and more prevalent, and the rate of its growth is getting even greater today. In global communication, participants often need to use a language that is not his or her primary language. In fact, for Japanese speakers, it is probably more common to use English than Japanese in international or cross-cultural communication.

Successful communication requires, as a key element, an understanding of the information provided by the speaker or writer. Otherwise, there may be misunderstandings which could cause a delay or problem in communication, or even a conflict between participating parties. Understanding involves linguistic skills as well as various other cognitive resources such as background knowledge and problem solving skills. In light of that, it is quite conceivable to imagine that there is a fair amount of challenge in understanding in a second or foreign language. What causes those challenges? How does our mind handle second language communication? What cognitive mechanisms and principles are involved in it? How is it possible to develop better pedagogy to teach second language skills? These are some of the questions that concern researchers in psycholinguistics and related fields.

The present study attempts to gain some insights into discourse comprehension in second language. While communication may involve spoken

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language, written language or often both, the present study focuses on reading comprehension. It is partly because there has been a long tradition of research on reading, and a great amount of knowledge has been accumulated in the literature. There are also methodological advantages for studying reading comprehension.

The present article is concerned with an overview of some major issues in second language comprehension and a theoretical consideration of cognitive mechanisms associated with them. The article has the following organization: First, key concepts and models of discourse comprehension will be reviewed. Then, some major issues with second language comprehension will be discussed. Finally, a theoretical model of second language comprehension will be presented and some empirical issues derived from it will be addressed.

In this article, the terms *reading comprehension, discourse comprehension*, and *text comprehension* are used interchangeably. Also, the *understanding* and *comprehension* are used interchangeably.

II. Cognitive Model of Discourse Comprehension

1. Memory Representations

The questions that have been asked by researchers may be summarized into the following two questions:

1) How do comprehenders represent a text in memory?

2) What processes are involved in text comprehension?

A number of studies have investigated these questions for the past few decades, and knowledge about various aspects of comprehension processes has been accumulated. The development of discourse comprehension research has led to several detailed and comprehensive models of comprehension (e.g., Just & Carpenter, 1992; Kintsch, 1988, 1998).

It is widely accepted by discourse comprehension researchers that the result of comprehending a text is represented in memory at multiple levels. According to the dominant theoretical framework of text comprehension (Kintsch & van Dijk, 1978; van Dijk & Kintsch, 1983), a text is represented at three distinctive

levels: the surface form, the textbase, and the situation model. The surface form refers to a memory of a verbatim of a text, representing surface features of the text such as syntactic structures. The surface form is considered to be the least durable of the three levels of representation and it is assumed to be short lived (Raney, Obeidallah, & Miura, 2002; Graesser, Millis, & Zwaan, 1997, etc.).

The textbase represents a text as a network of propositions (Kintsch, 1974; Kintsch & van Dijk, 1978). Propositions are analyzed from the surface form, and are connected to form a network. A proposition denotes an "idea unit" that represents the meaning of a text element such as a sentence, clause, or phrase. The connections between propositions are computed based on the information included in the text. This level of representation is more abstract than the surface form in that it does not represent certain features of the original text. For example, syntactic structure is not reflected in the textbase, and thus the active vs. passive difference is not represented. The textbase is regarded as being more durable than the surface form.

The situation model is a representation that includes the textbase and relevant information retrieved from long-term memory (knowledge base) that is integrated into the textbase. Like the textbase, the situation model takes the form of a network of propositions. This level of representaiton is assumed to be the description of the events and elements stated by the text, the related events and entities that are not mentioned, and interrelationships among them. It is thus regarded to represent the result of understanding of the text. The situation model is the most durable level of representation.

One important concept that is associated with situation model is that of coherence. It is assumed that the situation model the comprehender constructs is supposed to be coherent. According to van den Broek and Gustafson (1999), coherence may be defined in two ways. The first definition is that a representation is coherent if it adheres to a canonical schematic structure such as story grammars (e.g., Mandler & Johnson, 1977; Schank & Abelson, 1979; Stein & Glenn, 1979). The second definition states that a representation is coherent if it includes the meaningful relations among its elements. Such meaningful

relations include referential, spatial, causal, and category-instance relations. A coherent representation of a text is best captured by a network of interconnected meaning units (i.e., propositions).

2. Comprehension Processes

The theoretical constructs for memory representation described above are those of the products of comprehension. A theory of processes of comprehending a text is also needed. There are a number of processes that may be potentially postulated, depending on one's theoretical orientation and objectives of theorizing. One major distinction for comprehension processes is that of lower-level processes and higher-level processes. The lower-level processes involve those processes such as lexical access, syntactic parsing, and proposition formation. These are considered to be bottom-up, data-driven processes. That is, starting with letter and word recognition, lexical meaning is identified, and structural analysis is performed on phrases and sentences to construct propositional representations.

The higher-level processes construct a coherent representation of a text by connecting propositions and elaborating the textual information. The higher-level processes involve identification of contextually appropriate meaning, establishment of the relations between propositions, and elaborations on the textual information based on the knowledge stored in long-term memory. Thus, it is characterized as knowledge-driven, top-down processes.

Roughly speaking, lower-level processing may be assumed to be the processes involved in constructing textbase representations and high-level processing the processes for constructing a situation model. Though some of these low-level and high-level processes may be executed sequentially, these are considered to be interactive processes (Rumelhart, 1977).

3. Construction-Integration Model

To discuss how the comprehension processes described above construct memory representations, this section reviews Kintsch's (1988, 1998)

Construction-Integration (CI) model, which is one of the most influential cognitive models of comprehension, and serves as the theoretical framework on which the present research is based. The CI model may be referred to as a symbolic connectionist model (Holyoak, 1991) because it combines the symbolic mechanism (Newell & Simon, 1972) and the connectionist mechanism (Rumelhart & McClelland, 1986).

The CI model has two major processing components: bottom-up construction and top-down integration. During the construction phase, a set of symbolic rules of syntax and semantics are executed on a text. The propositional representation of the text constructed by these rules is elaborated with general knowledge to form a network of propositional nodes with connections among them based on the relations specified by the text, and the interrelations existing in long-term memory. As a result of these text- and knowledge-based construction processes, a coherence matrix is defined that specifies link strengths among the propositional nodes. In addition, an activation vector is defined that specifies an activation value for each node in the coherence matrix. An important feature of the construction phase is that the resulting representation contains associations and inferences that are irrelevant to a given context as well as relevant ones because the symbolic rules are weak, general rules rather than strong, smart rules (Norvig, 1989).

In the CI model, only those elements that simultaneously reside in working memory can be connected. If a given sentence is not the first sentence of a text, some propositions from the previous cycle are "carried over" and processed along with the new sentence. The number of propositions carried over is given by parameter *s*, and it is often set to be two propositions (e.g., Kintsch, 1988; Kintsch & van Dijk, 1978). The propositions that are not held over are transferred to long-term storage and remain retrievable through reinstatement searches.

In the integration phase, activation spreads through the network via the links among the nodes until it stabilizes. The integration computation is performed following the connectionist principles of constraint satisfaction (e.g., Rumelhart

& McClelland, 1986). The integration process filters out those nodes that are contextually inappropriate inferences and elaborations that had been generated during the construction phase. As a result, the representation that results from this process is a situation model that is coherent. This effect is a signature feature of the CI model.

What the CI model shows is that text comprehension is a cyclic process of construction and integration. That is, at time t_i the situation model m_i is constructed with a set of text elements (e.g., propositions from a sentence) e_i. At time t_{i+1} this model is updated with a new set of text elements e_{i+1} to form an updated situation model m_{i+1}. This continues until all the text is processed. A closer examination of the CI model reveals that this processing mechanism can be applied microscopically to the processing of e_i. That is, time t_i can be decomposed into $t_{i(1)}$ through $t_{i(n)}$. At time $t_{i(j)}$ a set of propositions $p_{i(j)}$ are integrated into the model $m_{i(j)}$. At time $t_{i(j+1)}$ a new set of propositions $p_{i(j+1)}$ are retrieved from knowledge base and integrated into the model. This process repeats until no knowledge is integrated. What this means is that the construction phase described above may be decomposed into the process of repetitive application of construction and integration. Such a model can provide a more detailed picture of discourse comprehension (Morishima, 1996, 2003; 森島, 2005).

In this section, the major theoretical concepts and models of text comprehension have been briefly reviewed. While they have been mainly developed through research on text comprehension in first language, these theoretical constructs provide a general framework for second language comprehension research. In fact, second language comprehension research has been influenced by L1 research (Brown, 1998). In that regard, it is important to know these concepts and models for further discussions.

III. Comprehension Processes in Second Language

1. Linguistic Threshold Hypothesis and Linguistic Interdependence Hypothesis

It is worth mentioning some assumptions about a second language as they make some important and interesting implications on the present research. In the present research, a second language is defined to be a language that is learned usually through some kind of formal instruction and conscious efforts of the learner. Though it may sound too obvious, a second language presupposes the presence of a first language. This fact has the following implications:

a) There may be an interaction between L1 and L2 or interference of L1 on L2.

b) Knowledge, reading skills, and reading strategies developed in L1 may or may not transfer to L2.

In the present study, proficiency in L2 is assumed to be lower than proficiency in L1. That means that while many comprehension processes in L1 are well learned and consequently highly proceduralized to become automatic processes, which does not cost much cognitive resources, certain linguistic knowledge of L2 may not be learned or not yet proceduralized. In this case, the processes associated with that knowledge may not be executed at all or must be executed in a more deliberate manner, which require more cognitive resources.

Differences in linguistic characteristics between L1 and L2 add more complexity to these factors. For example, between two languages that share cognates and have similar grammatical properties (e.g., French and Spanish), there may be some facilitation of the first language on the second language at least in certain aspects. Between Japanese and English, however, that is not the case. These languages are considered to be quite distinct and distant languages in terms of genealogy and linguistics. It is plausible, therefore, to assume that Japanese comprehenders can have a number of cognitive challenges in comprehending an English text.

Given these conjectures, several questions arise here. Are the processes in

L2 comprehension different from those in L1 comprehension? If so, in what way do they differ and what cognitive factors characteristic of L2 comprehenders cause those differences?

There are two hypotheses about the role of proficiency in L2: the linguistic threshold hypothesis and the linguistic interdependence hypothesis (Bernhardt & Kamil, 1995). The linguistic threshold hypothesis asserts that a minimum level of L2 proficiency is needed before comprehension processes can be effectively activated. According to this hypothesis, comprehension processes are different between L1 and L2 unless L2 proficiency is as high as that of L1 (i.e., native-level proficiency).

On the contrary, the linguistic interdependence hypothesis claims that L2 reading performance is largely shared with reading ability in a first language. That is, the cognitive processes used to comprehend texts in L1 transfer to L2. A good L1 reader has the potential to become a good L2 reader, but a poor L1 reader is unlikely to become a good L2 reader. Thus, this hypothesis predicts that for a given L2 speaker, the comprehension processes basically do not differ from those in L1.

While these hypotheses are competing with each other in certain aspects and levels of L2 comprehension, they are not mutually exclusive. Certainly, as the linguistic threshold model states, a minimum level of L2 proficiency is necessary for comprehension activity to take place. Likewise, transfer of L1 reading skills to L2 would not occur if the minimum level of L2 proficiency has been obtained. The research findings in the literature are generally in agreement with these claims.

Zwaan and Brown (1996) tested the effect of language proficiency and comprehension skill on situation-model construction. They examined English-speaking students who were enrolled in a third-semester French course. These researchers analyzed think-aloud protocols (i.e., simultaneous introspective reports of what mental operations are being performed) while reading in L1 (English) and in L2 (French). They found that language proficiency substantially influenced situation-model construction. The participants generated more

explanatory inferences, produced more accurate paraphrases, and generated more metacomments (e.g., "I think"), indicating the construction of a more complete situation model when reading in L1 than in L2. In contrast, when they were reading in L2, they concentrated on lower-level processes associated with the development of a surface form and textbase. Zwaan and Brown also found that skilled readers tended to generate more explanation inferences than less skilled readers in both L1 and L2. This pattern of results seems to suggest that regardless of the proficiency level in L2, those who have better reading skills tend to generate inferences that are more relevant to a situation model.

These data appear to provide support for both hypotheses. On the one hand, the finding that there were more textbase-related protocols in L2 and more situation model-related protocols in L1 is consistent with the linguistic threshold hypothesis. On the other hand, the linguistic interdependence hypothesis seems to be supported by the finding that in both L1 and L2, skilled readers tended to generate more explanation inferences than less skilled readers.

Tang (1997) conducted a study on Chinese-English bilinguals who were skilled readers in both L1 and L2. The think-aloud protocol data showed that the strategies used to comprehend texts were similar for L1 and L2, and that the processes used to read in L1 transferred to L2. Again, these results are consistent with both hypotheses.

2. Capacity Theory

While the linguistic threshold hypothesis and the linguistic interdependent hypothesis make claims about the relationship between comprehension and proficiency in L2, they do not delineate the cognitive mechanisms or principles that affect the comprehension processes. Zwaan and Brown's (1996) data showed that non-fluent L2 comprehenders were mainly engaged in textbase construction and not in situation model building. Neither hypothesis can provide an explanation about what operations might take place in processing an L2 text.

Just and Carpenter's (1992) capacity hypothesis offers such an explanation. According to their theory, a comprehender has a limited amount of processing

resources available at any given time. Different cognitive processes for comprehension compete for the limited amount of processing resources. During the comprehension of a simple text in their L1, most comprehenders will probably not exhaust their cognitive resources. Thus, they will have sufficient resources for other cognitive processes needed to construct a situation model and achieve comprehension. The situation is assumed to be different in non-fluent L2 comrehension. In non-fluent L2 comprehension, lower-level processes that are involved in textbase construction such as lexical access, syntactic analysis and proposition formation procedures will be more resource consuming than in L1. The capacity hypothesis asserts that when the demand for processing resources is greater than the supply, lower-level processes will be prioritized at the expense of higher-level processes. This model predicts that comprehenders should show less evidence of information integration at the situation model level during text comprehension in L2 than L1 to the extent that they are not fluent in L2. Indeed, this prediction is confirmed by Zwaan and Brown (1996).

3. A Model of L2 Comprehension

In this section, a cognitive model of L2 comprehension based on the aforementioned Construction-Integration (CI) model framework (Kintsch, 1988, 1998) is proposed. The model should incorporate the capacity hypothesis just discussed above. In the CI model architecture, a limited capacity memory system is realized in part with the *s* parameter, which specifies the number of propositions to be held over to a next processing cycle. In addition, in the extended CI model by Morishima (Morishima, 1996, 2003; 森島, 2005), the number of construction-integration cycles is constrained by the node activation threshold, which decides which network nodes can serve as retrieval cues in a next processing cycle. If the threshold is set to a higher value, there will be a fewer nodes that can retrieve information from long-term memory, resulting in a fewer number of processing cycles. Similarly, Goldman and Verma (1995) introduced a capacity-constrained CI model.

Non-fluent L2 comprehenders tend to devote more of their processing

resources to textbase construction than to situation model construction. As mentioned above, textbase construction involves a number of processes including lexical access, syntactic parsing, and proposition formation. In the CI model, these processes are conducted by means of a series of construction-integration cycles. For the sake of discussion, let us consider parsing, which is often discussed in relation to the issue to proposition formation. To derive propositions from a sentence, the comprehender needs to figure out idea units in the sentence. Consider the following sentences (from Perfetti & Britt, 1995):

(1) He dropped the book on the chair before leaving.

(2) He dropped the book on the battle before leaving.

At the surface level, the only difference between these sentences is the lexical item in the prepositional phrase in the middle of the sentence (i.e., 'chair' vs. 'battle'). However, these sentences should be analyzed into different syntactic structures. In Sentence 1, the prepositional phrase is attached to the verb phrase, indicating where the book was dropped. In contrast, in Sentence 2, the prepositional phrase is attached to the noun phrase, indicating what the book is about. This structural difference emerges because of the semantics of the noun in the prepositional phrase (i.e., 'chair' vs. 'battle'). Thus, what this example shows is that the comprehender needs to integrate semantic information into syntactic analysis. In the case of L2 comprehension, a reader may not be skilled enough to integrate this semantic difference during the parsing process. It may well be the case that the L2 comprehender first derives the same syntactic analysis, say the VP-attachment one, for both sentences. Alternatively, for each sentence, the two parse trees might be generated as possible interpretations. In either case, after the syntactic analysis, the semantic information should be integrated into the analysis. In the first case, for Sentence 2 the L2 comprehender should notice anomaly in the interpretation (i.e., the book was dropped on the battle) presumably with reference to world knowledge, and should redo the parsing. The cost for these processes is the number of iterations involved in redoing the construction and integration for the proposition formation. In the second case, on the other hand, for each sentence, the comprehender should

choose the appropriate interpretation presumably with reference to world knowledge. The cost for these operations is that more memory is required to store multiple interpretations and the selection operation (Ferstl, 1994a, 1994b). In both situations, the processes would require more processing resources.

Next, as an example of text comprehension, consider the following passages:

(1) Secondhand smoke refers to the cigarette smoke that nonsmokers breathe in. It is giving scientists a difficult time to prove its risks. This is because when people are exposed to secondhand smoke, they receive much lower doses of tobacco toxins than smokers do. The estimate of the dose is $1/70^{th}$. The tobacco industry needs to justify their practice. It claims that the damage is minor. So, it could not possibly be harmful. It is because the human body repairs itself so well. Nevertheless, national research institutions have declared secondhand smoke a significant health risk. Experts estimate the lung-cancer deaths it causes each year at 3,000. They have labeled secondhand smoke a "class A" cancer-causing factor. They labeled it just as hazardous as radon.

(2) Secondhand smoke, which refers to the cigarette smoke that non-smokers breathe in, is giving scientists a difficult time to prove its risks because people exposed to secondhand smoke receive much lower doses - the estimate is $1/ 70^{th}$ — of tobacco toxins than smokers do. The tobacco industry, which needs to justify their practice, claims that if the damage is so minor, it could not possibly be harmful since the human body repairs itself so well. Nevertheless, national research institutions have declared secondhand smoke a significant health risk. Having labeled secondhand smoke a "class A" cancer-causing factor that is just as hazardous as radon, experts estimate the lung cancer deaths it causes each year at 3,000.

Both passages contain the identical information. The difference is that Passage 2 uses more complex syntactic structures and longer sentences than Passage 1, which is written mostly with simple sentences. Based on the discussion on the single sentence example above, it is reasonable to assume that

the processing complexity is greater with complex sentences such as those with a relative clause than simple sentences, and thus more processing resources would be required. Therefore, it is plausible to assume that it would be more resource-demanding to process Passage 2 than Passage 1.

To summarize, the above discussion leads to the CI model simulation as follows: Compared to a simpler text, more structurally complex text would require a greater amount of processing resources, hence a greater number of construction-integration cycles for the construction of a textbase representation. The CI model predicts that a longer processing time would be needed for a complex text than a simpler one.

The CI model makes another interesting prediction. That is, the resulting textbase representation would be better (i.e., more durable and accurate) when a more complex text (e.g., Passage 2) is comprehended than a simpler one (e.g., Passage 1). This may sound counterintuitive, and calls for an explanation. As argued above, a more complex text would give more challenge to the L2 comprehender in terms of processing resources. Devoting more processing resources also means that a greater amount of processing will be performed, involving such operations as semantic analysis, integration of world knowledge. A structurally complex text may also require a repair process in parsing or lexical analysis. As a consequence, these "extra" processing efforts would lead to a greater amount of elaboration on the representation, resulting in a more durable and accurate textbase representation.

There is empirical evidence for this prediction from L1 text comprehension research. Based on the CI model, NcNamara, Kintsch, Songer, and Kintch (1996) predicted that a less well-written text would lead to better understanding than a well-written, fully coherent, explicit text for the reasons argued above (i.e., more elaborative processing). Their experiment showed that while readers who knew little about the text domain benefited from a well-written text, high-knowledge readers benefited from a less coherent text. Their conclusion is that it is not always the case that a good text is always better.

Myers, Shinjo, and Duffy (1987) conducted cued recall experiments on

causally related sentence pairs. Their finding was that as the causal relatedness between the sentences in a pair increased, the recall performance increased but then deteriorated in that the recall performance with highly causal sentence pairs was not as good as that with less highly causal sentence pairs. They also found that the reading time for the less highly causal sentence pairs was longer than the reading time for the highly causal sentence pairs. The researchers concluded that there was more elaborative processing that took longer to infer a causal relation for the less highly causal texts.

Related to this elaboration effect is Craik and Lockhart's (1972) levels of processing theory. According to the levels of processing, information is processed at multiple levels simultaneously according to its characteristics. The "deeper" the processing is, the better the processed information will be remembered. Processing of information at different levels is unconscious and automatic unless we attend to that level. In Craik and Lockhart's proposal, the processing levels were described to fall on a shallow to deep continuum with phonemic and orthographic processing being shallow and semantic processing being deep. However, it is plausible to postulate that the degree of processing depth varies even within one type of processing such as semantic processing. In the present case of text comprehension, the situation is more complex in that it involves several types of processing as described above.

The prioritization of resource allocation to the lower-level processes inevitably affects the higher-level processes of comprehension. To make the discussion concrete, let us consider the two example passages above. What situation models would be constructed for the example texts? For the complex text, compared to the lower-level textbase construction, it is assumed that the high-level processes to construct a situation model would have a substantially less amount of processing resources. This means that the degree of elaboration that is performed on the textbase would be limited. If, in one extreme case, all the processing resources are devoted to the textbase construction and no processing resources are left for the higher-processes, the situation model would not show any difference from the textbase. To the extend to which the model

allocates the processing resources to the higher-level processes, there should be elaborations such as global inferences, summarization, addition of information from knowledge. Therefore, the model predicts different situation models for these texts in that the simpler text would lead to a more elaborated situation model than the complex text.

IV. Conclusion

In this article, modeling L2 comprehension processes based on the Construction-Integration (CI) theory has been attempted. This is still an early stage of theorizing L2 comprehension processes, but the considerations of the issues developed here have led to some interesting predictions that can be put to empirical tests. Specifically, it is hypothesized that L2 comprehension would be influenced by structural characteristics of a text since different structural complexity would call for different comprehension processes.

There are a number of challenges in this endeavor. One of them is the issue of proficiency variability. To model and empirically investigate the comprehension processes, one needs to make assumptions about the comprehender's linguistic knowledge and skills, general knowledge, and other relevant cognitive abilities. To focus on linguistic knowledge and skills, for L1 comprehension, obviously, native-level proficiency is assumed, and that assumption provides a set of specific information about linguistic knowledge and skills. A cognitive model of L1 comprehension may be based on this set of assumptions. And experiments can be conducted on the native-level comprehenders by manipulating variables such as text characteristics and memory span. On the contrary, in the case of L2 comprehension, proficiency varies so greatly from a novice to a fluent bilingual that no single set of assumptions about linguistic knowledge in L2 would work for all L2 comprehenders.

A model of L2 comprehension should ultimately be able to identify the principles and mechanisms that govern the diversity and to account for the differences in comprehension processes that emerge from this diversity. However, the current state of the science does not seem to have reached this

stage yet. The immediate goal that faces the researchers today is to develop a cognitive model that can account for the comprehension processes of a certain level of L2 comprehenders. Then, it should be possible to identify a set of assumptions on which such a model can be based, and to devise experiments to test the predictions that derive from the model. Well-designed experiments like the ones cited in this article provide valuable findings about L2 comprehension.

Cognitive processes in L2 comprehension are complex, and raise interesting questions for cognitive psychologists. This kind of modeling approach to L2 comprehension is still on an early stage of development. Yet, these efforts would lead us to a better understanding of these complex cognitive phenomena.

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第二言語による文章理解に関する理論的考察

＜ 要 約 ＞

森島　泰則

第二言語（L2）理解プロセスを認知モデルの観点から論じる。この研究では、Construction-Integration (CI) モデルを L2 理解のモデル化の枠組みとして採用している。このモデルは、文章理解のモデルとして影響力のあるものである。この枠組みによれば、L2 理解における文章の記憶は、第一言語（L1）理解と同様に、3 段階の記憶表象に分けることができ、表層構造、テキストベース、状況モデルと呼ばれる。理解プロセスとは、状況モデルを構築するプロセスとみなすことができる。状況モデルは、テキストから得られる情報の表象であるテキストベースを精緻化したものととらえられる。CI モデルは、構築プロセスと統合プロセスの 2 つの処理プロセスから構成される。構築プロセスでは、ボトムアップ的にテキストに記述されている意味単位のネットワークを構築する。その際、弱いルールが適用される。このネットワーク表象は、次の統合プロセスにおいて、統合処理される。この処理には、コネクショニズムに基づく活性化分散の計算処理が行われる。その結果得られる記憶表象が、状況モデルで、整合性を持つという特徴がある。理解プロセスは、認知的容量によって制約を受けると考えられる。母語レベルにない L2 理解者の場合、より多くのプロセス資源を統語解析などのより低次の処理に割く必要があると考えられる。これは、理解者の言語知識がまだ十分に手順化されておらず、自動的なプロセスになっていないためと考えられる。CI モデルにおいては、テキストベース構築のプロセスに、より多くの処理サイクルが費やされ、それに比例して処理時間も長くかかる。したがって、モデルの予測として、この 低次処理優先によって文章がより「深く」処理され、テキストベースがより正確に構築できることになる。これは一見常識に反するようであるが、Craik と Lockhart (1972) によって提唱された「処理レベル仮説」と一致するものであり、L1 文章理解研究において、類似した実験結果が得られている。また、CI モデルによれば、

低次処理が優先されればされるほど、状況モデルは精緻化を欠き、テキストベースとの違いが現れなくなるということになる。したがって、L2 で、内容的には同一であるが、文章構造的に差がある二種類のテキストを読んだ場合、CI モデルからは、異なる記憶表象が予測される。これらの予測は実験的に検証される必要がある。L2 文章理解は複雑な認知プロセスであるが、また、興味深い問題も多く提示している。このようなモデル化によるアプローチはまだ初期段階にあるが、今後の発展により、L2 文章理解の仕組みの詳細がさらに明らかにされることが期待される。